

## Bar Graph showing concentrations of species in solution

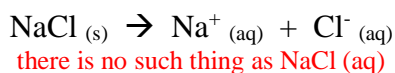
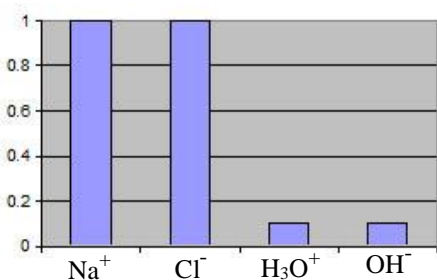
(water is not included in these graphs as it has a very high concentration of  $55.5 \text{ mol L}^{-1}$ )

The **salts** below dissolve fully in water,

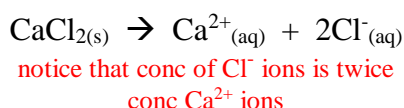
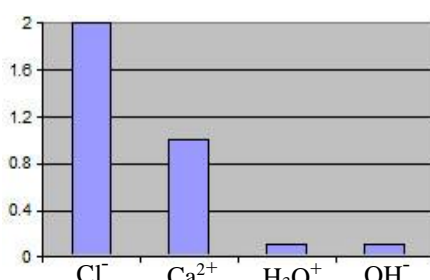
there are many ions free to move and carry a charge, so these aqueous solutions are good electrolytes

$\text{pH} = 7$  as  $[\text{H}_3\text{O}^+] = [\text{OH}^-]$

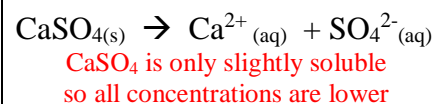
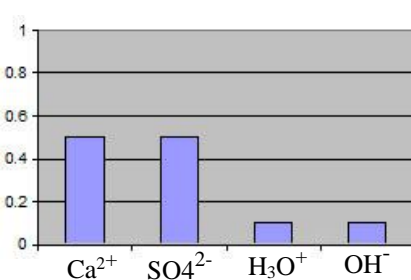
**NaCl**



**CaCl<sub>2</sub>**



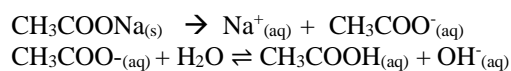
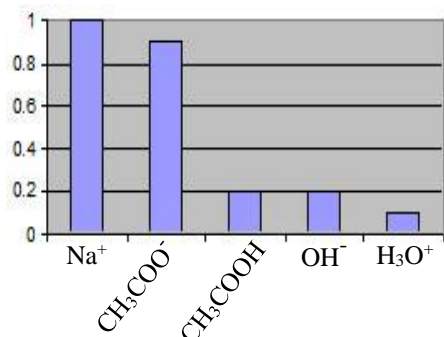
**CaSO<sub>4</sub>**



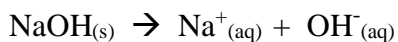
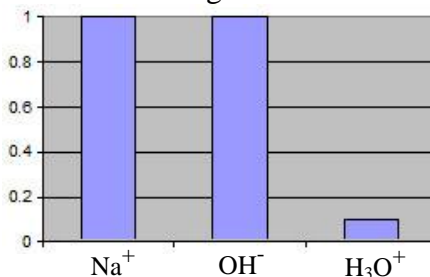
The following solutions all have  $[\text{OH}^-] > [\text{H}_3\text{O}^+]$  so the  $\text{pH} > 7$

They are also good electrolytes as there are ions free to move in solution and carry a charge

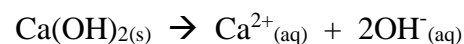
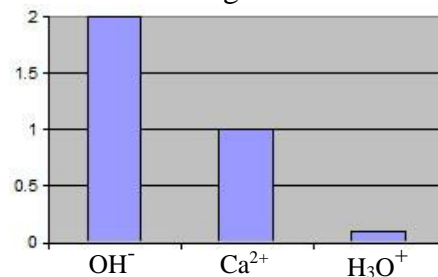
**CH<sub>3</sub>COONa in water**



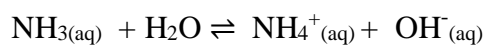
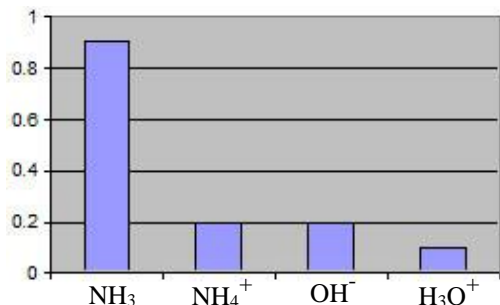
**NaOH in water  
strong base**



**Ca(OH)<sub>2</sub> in water  
strong base**



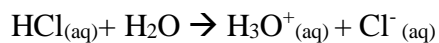
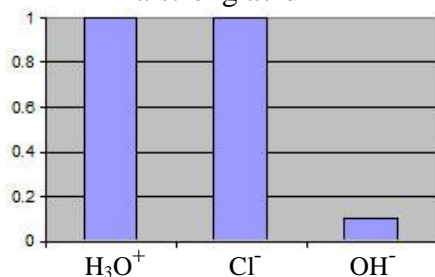
**NH<sub>3</sub> in water  
weak base**



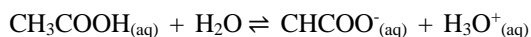
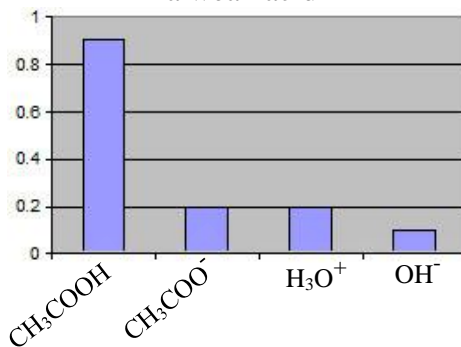
The following solutions all have  $[H_3O^+] > [OH^-]$  so the  $pH < 7$

They are good electrolytes as there are ions free to move in solution and carry a charge

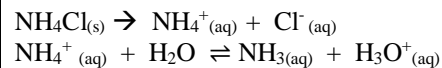
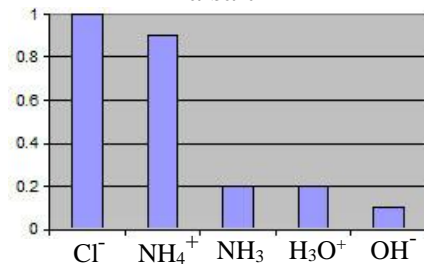
HCl in water  
a strong acid



$CH_3COOH$  in water  
a weak acid

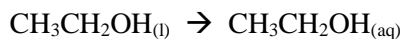
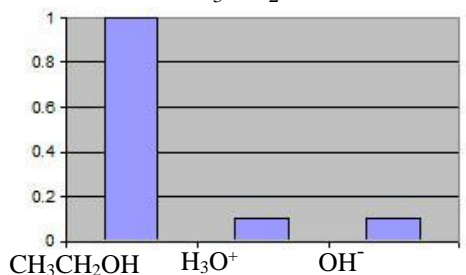


$NH_4Cl$  in water  
a salt



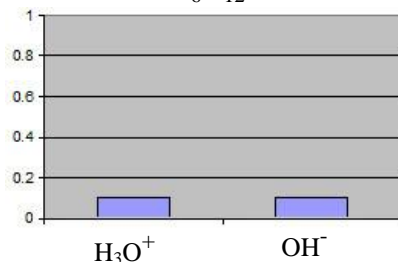
very soluble in water  
but a poor conductor of electricity as there  
are few free ions to carry a charge  
neutral pH

$CH_3CH_2OH$



insoluble  
poor conductor of electricity  
neutral pH

$C_6H_{12}$



as cyclohexane is insoluble,  
the concentrations of species present  
in water is unchanged